

REMARKS

Reconsideration of the above-identified patent application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-27 are in this case. Claims 2, 9, 17, 19, 20, 24, 25 and 26 have been rejected under § 112, second paragraph. Claims 17-19 and 21-26 have been rejected under § 102(b). Claims 2, 9, 20 and 27 have been objected to. Claims 1, 3-8 and 10-16 have been allowed. Independent claims 17 and 26 and dependent claims 2, 9, 19, 20, 24 and 25 have been amended. New independent claims 28, 30, 32 and 33 and new dependent claims 29 and 31 have been added.

The claims before the Examiner are directed toward a method for managing page-based data storage media such as flash media, a system that uses that method, and a computer-readable storage medium bearing code for implementing the method. New data are written to the storage medium in a way that precludes corruption of old data if the writing of the new data is interrupted, even if the pages share cells of the storage medium or if the storage medium is accessed as a plurality of logical pages, each one of which spans at least part of several physical pages of the storage medium. Risk zones are defined by identifying, for each page, the other pages whose data are put at risk of corruption if writing to the page is interrupted. A page, that otherwise would be the target of a write operation, is not written if any of the pages in its risk zone contain data that could be corrupted if the write operation is interrupted.

§ 112, Second Paragraph Rejections

The Examiner has rejected claims 2, 9, 17, 19, 20, 24 and 25 under § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claims 2 and 9, the Examiner has pointed out that the term “substantially simultaneously” in these claims is a relative term that renders the claims indefinite. Therefore, the word “substantially” has been deleted from these claims. As noted by the Examiner, these amendments place claims 2 and 9 in condition for allowance.

With regard to claim 17, the Examiner has identified antecedent basis issues in this claim. It is unclear to the Examiner whether the “pages” recited in element (b) are from among the “plurality of pages” recited in element (a). Applicant respectfully traverses the Examiner’s rejection of claim 17. Applicant believes that it is perfectly clear that the “pages” recited in element (b) are from among the “plurality of pages” recited in element (a). Nevertheless, in order to expedite the prosecution, Applicant has chosen to amend element (b) claim 17 to recite explicitly that the controller is for writing new data to the plurality of pages recited in element (b), in a manner that precludes corruption of old data stored in a first one of the plurality of pages if writing the new data to a second one of the plurality of pages is interrupted. Claims 24 and 25 have been amended similarly in conformity with the Examiner’s annotation of these claims in the context of the § 102(b) rejections

With regard to claim 19, the Examiner has no idea what “reversibly operationally associated” means. The intention of this phrase was to recite what is stated on page 10 line 25 to page 11 line 3 of the specification:

In other embodiments of the system of the present invention, the data storage medium and the controller are housed in separate devices and the operational association of the data storage medium and the controller is reversible.

Therefore, claim 19 has been amended to state that the data storage medium is operationally associated with the controller in a reversible manner.

With regard to claims 20, 24 and 25, the Examiner has pointed out that the term “operative to” leaves doubt as to whether the controller actually performs the claimed functions. Therefore, claims 20, 24 and 25 have been amended to state positively that the controller performs the claimed functions. Claim 20 as amended states that the controller writes the new data to the plurality of pages by identifying a respective risk zone for each page of the plurality of pages, selecting at least one unwritten page of the plurality of pages for writing the new data, and writing the new data to the at least one unwritten page only if the risk zone(s) of the targeted unwritten page(s) lack written pages.

With regard to claim 26, the Examiner has pointed out that reciting “computer readable code embodied on said computer readable storage medium” gives the false impression that the code is written on the medium instead of being encoded in the medium. Applicant thanks the Examiner for pointing out this inadvertent typographical error, which now has been corrected to “in”, in accordance with page 11 lines 14-18 of the specification:

The scope of the present invention also includes a computer readable storage medium in which is embodied computer readable code for writing new data to the pages of a data storage medium in a manner that precludes corruption of old data already stored in the pages of the data storage medium if the writing of the new data is interrupted. (emphasis added)

§ 102(b) Rejections – Admitted Prior Art

The Examiner has rejected claims 17-19 and 21-26 under § 102(b) as being anticipated by Applicant’s admitted prior art. The Examiner’s rejection is respectfully traversed.

While continuing to traverse the Examiner's rejections, Applicant has, in order to expedite the prosecution, chosen to amend independent claims 17 and 26 to limit

these claims to the case discussed on page 13 line 18 through page 15 line 16 of the specification: a data storage medium whose pages share at least one cell of the medium. As discussed in the Field and Background section of the specification, on page 5 line 23 through page 7 line 19, the prior art methods of preventing data corruption in the event of a power failure do not work for such a data storage medium.

Amended independent claims 17 and 26 now feature language which makes it absolutely clear that the controller of the present invention writes new data to the pages of the data storage medium in a manner that precludes corruption of old data stored in a first page if writing to a second page that shares one or more cells with the first page is interrupted; and that the computer readable code of the present invention is for writing new data to the pages of a data storage medium in a manner that precludes corruption of old data stored in a first page if writing to a second page that shares one or more cells with the first page is interrupted. Applicant believes that the amendment of the claims completely overcomes the Examiner's rejections on § 102(b) grounds.

With independent claim 17 allowable in its present form, it follows that claims 18, 19 and 21-25, that depend therefrom, also are allowable.

Applicant also has added new claims 28-31, to recite the second case discussed in the specification, on page 15 line 17 through page 16 line 12: a data storage medium that is accessed as a plurality of logical pages, with each physical page of the data storage medium spanning at least a portion of each of at least two logical pages. New claim 28 is claim 17 limited to this second case. New claim 29 bears the same relationship to new claim 28 as claim 20 bears to claim 17. New claim 30 is claim 26 limited to this second case. New claim 31 bears the same relationship to new claim 30 as claim 27 bears to claim 26.

Objections to the Claims

The Examiner has objected to claims 20 and 27 as being based on rejected base claims. The Examiner has noted that claims 20 and 27 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

New claim 32 is claim 20 rewritten in independent form. New claim 33 is claim 27 rewritten in independent form.

Objections to the Drawings

The Examiner has objected to Figures 1A, 1B and 2 for not being designated as "prior art". Attached please find corrected drawings labeled "PRIOR ART".

The Examiner has objected to the drawings as being incomplete. Specifically, the aspect of the present invention that is described on page 15 lines 17-12 should be illustrated; the aspect of the invention that is described on page 15 line 17 through page 16 line 12 should be illustrated; and the multi-level memory cell recited in claim 23 should be illustrated.

New Figures 4A-4D are attached to illustrate the aspect of the present invention that is described on page 15 lines 17-12. Four new paragraphs describing these Figures have been added to the specification after page 15 line 12.

New Figure 5 is attached to illustrate the aspect of the present invention that is described on page 15 line 17 through page 16 line 12. New text describing this Figure has been added to the paragraph beginning on page 16 line 5.

New Figure 6 is attached to illustrate the operation of a multi-level memory cell. New text describing this Figure has been added to the paragraph beginning on page 7 line 2.

The specification has also been amended to include brief descriptions of the drawings, starting on page 12 line 2. No new matter has been added.

Other Amendments to the Specification

On page 4 line 17, the serial number of US 10/298,094 has been replaced with the corresponding publication number.


On page 5 line 21, the serial number of US 10/397,378 has been replaced with the corresponding publication number. Please note that there was an inadvertent typographical error in that serial number in the patent application as filed ("397,398" instead of "397,378").

As requested by the Examiner, a reference to housing 15 of prior art device 10 as an example of a common housing has been added to the paragraph beginning on page 10 line 23.

No new matter has been added.

In view of the above amendments and remarks it is respectfully submitted that independent claims 1, 17, 26, 28, 30, 32 and 33, and hence dependent claims 2-16, 18-25, 27, 29 and 31 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,



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